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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	**BOX PATENT APPLICATION**
Gerard H. MARTIN et al.	:	Examiner: Unassigned
Serial No.: Unassigned	:	Group Art Unit: Unassigned
Filed: Herewith	:	

For: PROCESS FOR GENERATING HEAT TO REDUCE THE EMISSION OF OXIDES OF SULPHUR AND REDUCE ADSORBENT CONSUMPTION

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, Applicants wish to amend the above-identified application as indicated below:

IN THE ABSTRACT

Please delete the existing Abstract and replace with the attached new Abstract of the Disclosure.

IN THE CLAIMS

Please amend the claims as follows:

3. (Amended) A process according to claim 1, further comprising after step f), regenerating at least a portion of said adsorbent particles comprising said sulphur-containing compounds and re-injecting the resultant regenerated adsorbent particles into the space acting to supply the desulphurisation apparatus.

4. (Amended) A process according to claim 1, wherein a calcitic adsorbent is used and desulphurisation is conducted at a mean temperature in the range of 800°C to 1110°C.

5. (Amended) A process according to claim 1, wherein a regeneratable magnesian adsorbent is used and desulphurisation is conducted at a mean temperature in the range of 700°C to 1000°C.

6. (Amended) A process according to claim 1, wherein after combustion step a), the fumes traverse one or more superheated steam bundles.

7. (Amended) A process according to claim 1, operated at adsorbent flow rates such that the concentration of solids in the fumes, except for the recycle, is in the range 0.1 to 1000 g/Nm^3.

8. (Amended) A process according to claim 1, operated with a gas recycle ratio in the apparatus in the range of 1% to 50%.

9. (Amended) A process according to claim 8, wherein the adsorbent recycle ratio is in the range of 1 to 50.

10. (Amended) A process according to claim 1, wherein the grain size of the adsorbents is in the range of 0.1 to 1000 microns.

11. (Amended) A process according to claim 1, wherein the adsorbent particles have a density in the range of 100 to 5000 kg/m^3.

REMARKS

A principal purpose of this Preliminary Amendment is to remove the multiply dependent claims and avoid the fee associated therewith, applicant reserving the right to reintroduce claims to canceled combined subject matter.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"Version With Markings To Show Changes Made"**.

Respectfully submitted,

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Abstract of the Disclosure

For reducing emissions of oxides of sulphur:

a) a sulphur-containing fuel is burned in a combustion zone comprising a heat exchange zone in which at least a portion of the heat is extracted, and effluents or combustion fumes are recovered at a temperature in the range 800°C to 1200°C;

b) the fumes resulting from said combustion, charged with oxides of sulphur, traverse a space for supplying and distributing the fumes to a desulphurisation apparatus functioning with an internal recycle of a solid oxide of sulphur adsorbent;

c) the adsorbent is injected into said space;

d) the fumes are caused to enter said apparatus;

e) the fumes are caused to penetrate into a convection exchange zone and at least a portion of the heat is extracted from said fumes;

f) the mixture resulting from steps b) and c) is separated in a gas/solid separation zone and a portion of the gaseous effluent that has been freed of the major portion of the oxides of sulphur and at least partially cooled is evacuated, and said adsorbent particles comprising said sulphur-containing compounds are evacuated.

IN THE ABSTRACT

The existing Abstract has been deleted, therefore no marked-up version is necessary.

IN THE CLAIMS

Claim 3 has been amended as follows:

3. (Amended) A process according to claim 1 ~~or claim 2, characterized in that~~, further comprising after step f), regenerating at least a portion of said adsorbent particles comprising said sulphur-containing compounds ~~is regenerated~~ and re-injecting the resultant regenerated adsorbent particles ~~are reinjected~~ into the space acting to supply the desulphurisation apparatus.

Claim 4 has been amended as follows:

4. (Amended) A process according to claim 1 ~~or claim 2, characterized in that~~, wherein a calcitic adsorbent is used and ~~in that the mean~~ desulphurisation is conducted at a mean temperature ~~is~~ in the range of 800°C to 1110°C.

Claim 5 has been amended as follows:

5. (Amended) A process according to ~~any one of claims 1 to 3, characterized in that~~ claim 1, wherein a regeneratable magnesian adsorbent is used and ~~in that the mean~~ desulphurisation is conducted at a mean temperature ~~is~~ in the range of 700°C to 1000°C.

Claim 6 has been amended as follows:

6. (Amended) A process according to ~~any one of the preceding claims, characterized in that~~ claim 1, wherein after combustion step a), the fumes ~~are traversed by~~ traverse one or more superheated steam bundles.

Claim 7 has been amended as follows:

7. (Amended) A process according to ~~any one of the preceding claims, characterized in that the~~ claim 1, operated at adsorbent flow rates ~~are~~ such that the concentration of solids in the fumes, except for the recycle, is in the range 0.1 to 1000 g/Nm^3.

Claim 8 has been amended as follows:

8. (Amended) A process according to ~~any one of the preceding claims, characterized in that the~~ claim 1, operated with a gas recycle ratio in the apparatus ~~is~~ in the range of 1% to 50%.

Claim 9 has been amended as follows:

9. (Amended) A process according to ~~any one of the preceding claims, characterized in that~~ claim 8, wherein the adsorbent recycle ratio is in the range of 1 to 50.

Claim 10 has been amended as follows:

10. (Amended) A process according to ~~any one of the preceding claims, characterized in that~~ claim 1, wherein the grain size of the adsorbents is in the range of 0.1 to 1000 microns.

Claim 11 has been amended as follows:

11. (Amended) A process according to ~~any one of the preceding claims, characterized in that and~~ claim 1, wherein ~~the density of~~ the adsorbent particles ~~is~~ have a density in the range of 100 to 5000 kg/m^3.